

**PROCEEDINGS**

# **ECEEE-2018**

**Annual International Conference on  
Electronics, Computer Engineering and  
Electrical Engineering**

**Venue: Osaka International Convention Center  
Osaka, Japan  
Date: January 29-30, 2018**



# ***CONFERENCE BOOK OF ABSTRACT PROCEEDINGS***

*Consortium-ET*

Consortium of Engineering & Technology



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# **Book of Abstracts Proceedings**

**Annual International Conference on Electronics, Computer Engineering and Electrical Engineering (ECEEE)**

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*Annual International Conference on Electronics,  
Computer Engineering and Electrical Engineering  
(ECEEE)*

**Venue: Osaka International Convention Center, Japan**

**Conference Theme:** Providing Platform for enhancement of research  
and developmental activities through networking.

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Conference Chair

**Email:** Michael@consortium-et.com

**Febrialdy Hendratawan**

Conference Supervisor

**Email:** contact@consortium-et.com

## CONFERENCE TRACKS

- Computer and Software Engineering
- Mechanical & Metallurgical Engineering
- Electrical & Electronics Engineering
- Civil Engineering
- Bio-Technology & Food Technology
- Chemistry & Chemical Engineering
- Physical, Applied and Life Sciences
- Interdisciplinary

## CONFERENCE CHAIR MESSAGE

### **Michael Sasaoka**

“International Conference of Consortium of Engineering & Technology” is a platform that thrives to support the worldwide scholarly community to analyze the role played by the multidisciplinary innovations for the betterment of human societies. It also encourages academicians, practitioners, scientists, and scholars from various disciplines to come together and share their ideas about how they can make all the disciplines interact in an innovative way and to sort out the way to minimize the effect of challenges faced by the society. All the research work presented in this conference is truly exceptional, promising, and effective. These researches are designed to target the challenges that are faced by various sub-domains of the social sciences and applied sciences.

I would like to thank our honorable scientific and review committee for giving their precious time to the review process covering the papers presented in this conference. I am also highly obliged to the participants for being a part of our efforts to promote knowledge sharing and learning. We as scholars make an integral part of the leading educated class of the society that is responsible for benefitting the society with their knowledge. Let’s get over all sorts of discrimination and take a look at the wider picture. Let’s work together for the welfare of humanity for making the world a harmonious place to live and making it flourish in every aspect. Stay blessed.

Thank you.

Michael Sasaoka

Conference Chair

Email: [contact@consortium-et.com](mailto:contact@consortium-et.com)

**DAY 01 Monday (January 29, 2018)**

**First Presentation Session (10:30 am - 12:30 pm)**

**Venue: Room 1**  
**Session Chair: Dr. Vincent**

**Track A: Business, Economics, Social Sciences and Humanities**

<b>Presenter Name</b>	<b>Manuscript Title</b>	<b>Paper ID</b>
Yuan-Hsun Liao	Design of Virtual Reality Materials for E-Learning	OKS-518-103
Yuan-Hsun Liao	Distance Teaching: Virtual Environment of Study	OKS-518-104
Ting Ting Chang	Work and Family Related Factors and Work-Family Conflict: The Moderating Role of Gender Role Orientation	EMCG-JAN-102
Abul Kashem Sheikh, Afroza Akbar, Iman Ali, Md.Bepari, Nobin	Lectric Thin Film Form Future Electron Devices Science And Technology	EMCG-JAN-103
YongJu Kim	The Influence of Approaches to Learning of Office Workers on Organizational Change Readiness And Moderating Effects of LMX and TMX	EMCG-JAN-108
YongJu Kim	Effect of Organization Conflict on the Readiness of Organization Changes and Moderating Effect of Psychological Capital	EMCG-JAN-109
Lee-Chen Chen	An Empirical Study on the Effect of Visual Arts Appreciation Teaching On Children's Aesthetic Development	IRBEMSH-018-ANI103
Kuan-Hui Lee	Cross- And Serial Correlation of Liquidity	IRBEMSH-018-ANI104

**Lunch Break (12:30 pm - 01:30 pm)**

**DAY 01 Monday (January 29, 2018)**

**Second Presentation Session (10:30 am - 12:30 pm)**

**Venue: Room 1**

**Session Chair: Dr. Vincent**

**Track B: Engineering and Technology, Computer, Basics and Applied Sciences**

<b>Presenter Name</b>	<b>Manuscript Title</b>	<b>Paper ID</b>
Min Young Ha, Dong Hyun Kim, Ji Ho Ryus	Effect of Lattice Relaxation on Thermal Conductivity Prediction Via Molecular Dynamics Simulations: Study on Fcc-Based Structures	OKE-518-102
Hyo Seok Kim, Jung Gun Bae	First Principles Calculations of Thermoelectric Properties of Bi <sub>2</sub> Te <sub>3</sub> And Pbte	OKE-518-103
Garam Choi, Ji Woong Yu, Jiyeong Cho	Theoretical Prediction of the Electronic Transport Properties of the Al-Cu Alloys Based on the First-Principle Calculation and Boltzmann Transport Equation	OKE-518-104
Minhwan Lee, Seulwoo Kim	Interfacial Structure Analysis for the Morphology Prediction of Adipic Acid Crystals from Aqueous Solution	OKE-518-105
Mr Dong-Seung Geum	A Study on Personal Information Infringement Measures of Mobile Augmented Reality System	ECEEE-JAN18-102
Jae-ung Lee	A Study on Smartphone Security Threat Through Content Modulation of Bidirectional Digital Signage	ECEEE-JAN18-103
Prof. Po-Lei Lee	Study of hemodynamic responses induced by olfactory stimulation using multivariate empirical mode decomposition	ECEEE-JAN18-105
Mr Mikifumi Shikida	A Method to Support Medical Trainings using Wearable Smart-glasses	ECEEE-JAN18-106

**Track C: Medical, Medicine and Health Sciences**

Seong Yeon Park	Persistence of Varicella Zoster Virus in Saliva and Postherpetic Neuralgia in Patients with Herpes Zoster	OKM-518-101
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**Lunch Break (03:30 pm - 04:45 pm)**

## **Participants Registered as Listener/Observer**

The following Scholars/ practitioners who don't have any paper presentation, however they will attending the conference as delegates & observers.

**Official ID:** EMCG-JAN-105A  
Hyeonju Seol  
Chungnam National University, Korea

**Official ID:** OKE-518-106A  
Soon-Sun Kwon  
College of Natural Sciences, Ajou University, Korea

## **Conference Day 02 (January 30, 2018)**

Second day of conference will be specified for touristy. Relevant expenses are borne by Individual him/herself.



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***TRACK A***

***BUSINESS, ECONOMICS, SOCIAL SCIENCES AND  
HUMANITIES***



## Effect of Lattice Relaxation on Thermal Conductivity Prediction Via Molecular Dynamics Simulations: Study on Fcc-Based Structures )

<sup>1\*</sup>Min Young Ha,<sup>2</sup>Dong Hyun Kim

<sup>3</sup>Ji Ho Ryus,<sup>4</sup>Won Bo Lee

<sup>1,2,3,4</sup> Seoul National University

Corresponding Email:myha9366@gmail.com

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**Keywords:** Effect of lattice relaxation on thermal conductivity prediction via molecular dynamics simulations: study on fcc-based Structures

This work studies the computational details of molecular dynamics (MD) thermal conductivity prediction with Green-Kubo method. Little consensus has been made among researchers about the choice of lattice parameter in MD thermal conductivity calculation, leading to mutually disagreeing reports. Simulations on fcc-based structures with different lattice parameters were performed to calculate lattice thermal conductivities, heat current autocorrelation functions, and phonon density of states. The results were compared to experimental reports and ab initio calculations to conclude that lattice volume relaxation in isobaric-isothermal (NpT) ensemble is crucial for accurate prediction of thermal conductivity. In addition, effect of domain size and interatomic potential cutoff distance was also studied in the context of lattice relaxation, and it was verified

## Design of Virtual Reality Materials for E-Learning

<sup>1\*</sup> Yuan-Hsun Liao

Tainan University of Technology

Corresponding Email: yuanhsunliao@gmail.com

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**Keywords:** Virtual reality E-Learning Multimedia learning

The tools of E-Learning significantly are improved learning effect in current information technology. Learning tendency transfers static to dynamic and learning manner from passive transferred to initiative. Learning environment and space dont restrict. But, the learners often suffered interference and attracted by external things resulting to divert attention and reduce the learn benefit. Therefore, this paper uses the features of Virtual reality to design the VR learning materials. Learner use virtual reality equipment to study e-Learning material. That design can let learner immersed in learning environment and reduces diverts of attention to enhance learning effect. And, the game learning of interaction can cause learning interest and enable the learner unlimited time and space for enjoying the learnings pleasure.

## Distance Teaching: Virtual Environment of Study

<sup>1\*</sup> Yuan-Hsun Liao,<sup>2</sup> Sheng-Han Yen,

<sup>3</sup>Yu-Tung Wu,<sup>4</sup>Yu-Ren Gong

<sup>1,2,3</sup>Tainan University of Technology

Corresponding Email: yuanhsunliao@gmail.com

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**Keywords:** Virtual reality, Distance teaching, Virtual classroom

In today's teaching methods, distance teaching has been gradually becoming a trend that has changed the students learning way. Through the video teaching assist students to learn knowledge without leaving home. But, the lack of synchronous distance learning and interactive real-time will improved this end if we want to break the traditional distance learning. So, we design the realistic classroom teaching environment moved into the virtual network environment. Through VR technologies combine distance learning and classroom teaching mode to the VR classroom to achieve better learning effects. Students not only join the classroom teaching but also interactive with the teacher to enhance students learning. That can reduce the interference of the external environment and enhance the students' learning ability and concentration.

## First principles calculations of thermoelectric properties of Bi<sub>2</sub>Te<sub>3</sub> and PbTe.

<sup>1\*</sup>Hyo Seok Kim,<sup>2</sup> Jung Gun Bae

<sup>3</sup> Won Bo Lee

<sup>1,2,3</sup> Seoul National University

Corresponding Email: snukhs@snu.ac.kr

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**Keywords:** Thermoelectric, DFT, BTE

We presented first-principle calculations of electron and phonon transport in Bi<sub>2</sub>Te<sub>3</sub> and PbTe. We focused on the several thermoelectric properties; Seebeck coefficient, electrical conductivity, electrical thermal conductivity and lattice thermal conductivity. The electronic transport is calculated using the projector augmented wave (PAW) method implemented in Vienna Ab-initio Simulation Package (VASP) and Boltzmann transport equation (BTE). From electronic transport, the Seebeck coefficient can be estimated by simple expression containing band-gap energy. From phonon transport, we calculated the interatomic force constants (IFCs) along with a fully iterative solution of phonon-BTE. This approach allows both harmonic and anharmonic interatomic forces to be contained into the result. The calculated lattice thermal conductivity was found to be in good agreement with experimental data. We discussed that the first-principle methodology can be a tool to understand the transport details in many solid-state devices.

## Theoretical prediction of the electronic transport properties of the Al-Cu alloys based on the first-principle calculation and Boltzmann transport equation

<sup>1\*</sup>GARAM CHOI, <sup>2</sup>Ji Woong YU

<sup>3</sup>Jiyeong CHO, <sup>4</sup>Won Bo LEE

<sup>1,2,3,4</sup> Seoul National University Corresponding Email: katarsis@snu.ac.kr

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**Keywords:** Metal alloy, Thermal conductivity, electrical resistivity, Boltzmann Transport Equation, First-principles Calculation

Metal alloys, especially Al-based, are commonly-used materials for various industrial applications. In this paper, the Al-Cu alloys with varying the Al-Cu ratio were investigated based on the first-principle calculation using density functional theory. And the electronic transport properties of the Al-Cu alloys were carried out using Boltzmann transport theory. From the results, the transport properties decrease with Cu-containing ratio at the temperature from moderate to high, but with non-linearity. It is inferred by various scattering effects from the calculation results with relaxation time approximation. For the Al-Cu alloy system, where it is hard to find the reliable experimental data for various alloys, it supports understanding and expectation for the thermal electrical properties from the theoretical prediction.

## **Persistence of varicella zoster virus in saliva and postherpetic neuralgia in patients with herpes zoster**

\* Seong Yeon Park

Dongguk University Ilsan Hospital, Goyang, Republic of Korea

Corresponding Email: psy99ch@hanmail.net

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**Keywords:** Trigeminal, Saliva, Varicella zoster

Herpes zoster (HZ) is caused by the reactivation of latent Varicella zoster virus (VZV) in sensory trigeminal and dorsal root ganglia. Reactivated VZV replicates in the skin and produces the characteristic HZ rash, which is accompanied by acute pain and often by postherpetic neuralgia (PHN). VZV DNA is present in the saliva of patients with HZ. In addition, there was a positive correlation between the presence of VZV DNA and pain. Thus, we evaluate the usefulness of saliva for the detection of VZV in patients with HZ, and then analyze the relationship of persistence of saliva VZV DNA and PHN.

## **An Empirical Study on the Effect of Visual Arts Appreciation Teaching on Children's Aesthetic Development**

\* LEE-CHEN CHEN

Minghsin University of Science and Technology Country Republic of China (Taiwan)

Corresponding Email: kukuku\_chen@hotmail.com

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**Keywords:** Visual Arts Appreciation Teaching, Preschool Aesthetic Education

This study aims at exploring the effect of visual arts appreciation teaching on childrens interest and feelings about watching artworks, perception and views on artistic work, and performance in art creation. In this study, 5 to 6-year-old children were chosen as subjects and works of artists as themes. First of all, a series of adaptive teaching materials for 16 teaching sessions on visual arts appreciation teaching for children were self-developed. These materials were later used in a four-month teaching program on a one session per week basis. In this empirical research, teaching records, interviews & questionnaires, and drawing paper were used to collect research data and record teaching process. Before teaching, a pretest on the subjects interest and feelings about watching artworks, perception and views on artistic work, and performance in art creation was conducted. After teaching, a posttest of the same kind was conducted. Three months later, a delayed test was further conducted on the subjects. Lastly, the research data were concluded and compared with different research data by means of triangulation in order to increase the confidence of the study. As shown by the results, intervention of visual arts appreciation teaching has material effect on childrens aesthetic development in terms of their feelings and perception on artistic work and performance in art creation therefore it is worth promoting and further exploring the value of visual arts appreciation teaching in early childhood education.

## Cross- and Serial Correlation of Liquidity

<sup>1\*</sup>Kuan-Hui Lee

<sup>1,2</sup>Seoul National University, S. Korea

Corresponding Email: kuanlee@snu.ac.kr

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**Keywords:** Liquidity, Positively correlated, Market Efficiency.

With the presence of empirical evidence of correlated liquidity, it is now of interest to investigate how and why liquidity transmits across stocks. Rather than dealing with liquidity as an exogenous factor, in a vector autoregressive framework, we find the existence of lead and lag patterns in liquidity in that past change of illiquidity of liquid stocks are positively correlated with current change of illiquidity of less liquid stocks. This relationship has been weakened in recent periods, reflecting the improvement of financial market efficiency over time. However, the liquidity spillovers are not restricted among fundamentally correlated stocks: While the liquidity spillovers within industry are significant, there is strong evidence that liquidity is affected more by the liquidity of stocks from other industries. This implies that the liquidity can be independently determined from price and the strategic trading of investors in a financial market is the source of liquidity spillovers. Empirical results in this paper are robust to various lag specifications, stock sorting schemes, data frequencies (daily and weekly), and weighting schemes (equal- and value-weight).

## **Work and Family Related Factors and Work-Family Conflict: The Moderating Role of Gender Role Orientation**

<sup>1\*</sup> Ting Ting Chang, <sup>2</sup> Minjeong Ham

Lunghwa University of Science and Technology Corresponding Email:  
tinapc@ms24.hinet.net

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**Keywords:** Work and Family Conflict, Gender Role Orientation, work demands and family demands

Gender difference has been one of the most concerned issues in research on work-family conflict which has attracted a lot of interest recently. However, the research findings are inconsistent partly with mistaken assumption of biopsychological equivalence. That is, biological sex is regarded as an equivalent of psychological gender identification so that it is inferred that men hold work roles and women hold family roles. To close the research gap mentioned above, we examine the moderating role of gender role orientation in the relationship between work-family conflict and its antecedents. Using structured questionnaires, a diverse sample of 317 full-time employees drawn from a variety of organizations in Taiwan was surveyed. We found that both workload and family responsibility were positively associated with work to family conflict (WFC). Family responsibility was positively related to family to work conflict (FWC), whereas family time was negatively to family to work conflict (FWC). Both masculine orientations and feminine orientations were negatively affected work to family conflict (WFC). Besides, masculine orientations and feminine orientations could moderate the relationship between family responsibility and family to work conflict (FWC). The findings can provide the importance of gender difference and sound advice for effective interventions in combating work-family conflict.

## LECTRIC THIN FILM FORM FUTURE ELECTRON DEVICES SCIENCE AND TECHNOLOGY

\* Abul Kashem sheikh-  
Kathak academy, UNCSOs (ECOSOC)  
Corresponding Email: kashemakashem@yahoo.com

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**Keywords:** Dielectric, Sustainable, Technology

Dielectric Thin film is a kind of film which is especially for future electron devices, Under the base of Science and Technology a dielectric thin film makes a great change amongst the electron devices. For instance any kind of micro change will be appropriate as well as suitable for sustainable in micro-electron devices. Today micro electron stands for the modern change also. All the Electron are related to the planet earth conphasizes on super kind of changes. Therefore, the people of Bangladesh also trying to reach the goal. This will work as a guiding manual for them and the basis of more advance research in the filed of electron devices. So it has to face the Challenges and find ways in the field of electron field to make all the oppose and thus go ahead the way to the sustainable dielectric thin film development

## **The influence of approaches to learning of office workers on organizational change readiness and moderating effects of LMX and TMX**

<sup>1</sup> AhJeong Hong,<sup>2\*</sup> YongJu Kim

Chung-Ang University, Korea Corresponding Email: ah454@cau.ac.kr

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**Keywords:** Approaches, Organizational Readiness, Leader-Member Exchange, Team-Member

The purpose of this study is to find out the influence of approaches to learning in the workplace on organizational change readiness and to verify the moderating effect of LMX and TMX on the relationship between independent and dependent variables. Approaches to learning in the workplace is divided into deep approach, surface-rational approach, and surface-disorganized approach. A self-reporting survey were conducted for team members who were not in charge of team leadership in domestic company.

***TRACK B***

***ENGINEERING AND TECHNOLOGY, COMPUTER, BASICS  
AND APPLIED SCIENCES***

## **Effect of Organization Conflict on the Readiness of Organization Changes and Moderating Effect of Psychological Capital**

\*YongJu Kim

Chung-Ang University

Corresponding Email: yongjukim06@naver.com

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**Keywords:** Relationship Conflict, Task Conflict, Readiness Change, Psychological Capital

This study aims to investigate the effect of organization conflict on the readiness of organization changes and to validate the psychological characteristics of the individuals on the mediating effect between the conflict and the readiness of organization changes. To do so, the conflicts in the organization were divided by relationship conflict that occurred in the personal relationship among the members and task conflict that occurred during the implementation of the tasks, to understand the relationship of effect on the readiness of organization changes that was a dependent variable.

## A Study on Personal Information Infringement Measures of Mobile Augmented Reality System

<sup>1\*</sup>Mr Dong-Seung Geum,<sup>2</sup>Nam-Jeong Kim

<sup>3</sup>Gang-Soo Lee

<sup>1,2,3</sup>Hannam University, South Korea

Corresponding Email: vanillamaru@gmail.com

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**Keywords:** Augmented Reality, Mobile Augmented Reality, Personal Information, Information Protection, Personal Information Threat.

With the recent popularization of smartphones, existing services have undergone many changes and the information sharing environment is developing rapidly to cope with changes. Therefore, various methods are used to provide information to the user. In recent years, the age of augmented reality, in which reality is combined with virtual reality to give users a high level of immersion, is actively researched. Augmented reality provides various information visually based on active participation of users. Due to these factors, a variety of mobile contents based on augmented reality are gaining popularity. However, augmented reality is increasing the content based on user's personal information in order to provide various information, and accordingly the threat of personal information is increasing. Especially, in case of mobile augmented reality, many kinds of sensitive personal information infringement cases are taking place because users often provide various contents using location information. Therefore, in this paper, to reduce the threat of personal information that may occur in a mobile augmented reality system. As a result, the scope of the threat is designated and the threat item is specified. We also want to find out if there are any security requirements necessary to respond to the threat and to study ways to minimize the threat.

## **A Study on Smartphone Security Threat Through Content Modulation of Bidirectional Digital Signage**

<sup>1\*</sup>Jae-Ung Lee, <sup>2</sup>Rae-young Jang

<sup>3</sup>Woo-young Soh

<sup>1,2,3</sup>Hannam University, Daejeon, Republic of Korea

Corresponding Email: leejaeung1990@gmail.com

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**Keywords:** Digital Signage, Smartphones, Bi-directional, Security, Personal Information.

Digital signage, regarded as the fourth media revolution following TV, computers, and mobile phones, refers to a digital billboard that provides information, entertainment, and advertisement. From the first generation digital signage that transforms existing outdoor advertisements into digital displays such as signs, posters, and signboards to the second-generation that customized information by interacting with customers, digital signage is actively being commercialized in today's world. In this paper, we will examine the security threats to smartphones that happens when content of bidirectional digital signage is tampered.

## Study of hemodynamic responses induced by olfactory stimulation using multivariate empirical mode decomposition

<sup>1\*</sup>Prof. Po-Lei Lee,<sup>2</sup> Kuo-Wai Wang

<sup>3</sup>Kuo-Kai Shyu

<sup>1,2,3</sup> National Central University, Taiwan

Corresponding Email: pllee@ee.ncu.edu.tw

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**Keywords:** Functional Magnetic Resonance Imaging, Olfactory, Multivariate Empirical Mode Decomposition.

Olfactory sensation is crucial in our daily life. It affects our mood, behavior, autonomous function, immune system, and provides information for sensing hazard environment. It has been found that olfactory dysfunction is along with several clinical neurodegenerative diseases, such as Alzheimers disease, multiple sclerosis, degenerative ataxias, Parkinsons disease, etc. Nevertheless, diverse activation areas were reported in different papers owing to the inter-individual difference in sensing chemosensory stimulation. Traditional functional magnetic resonance imaging technique (fMRI), like SPM, utilizes paradigm-based linear correlation and statistical techniques to discriminate activation areas from background activities which ignores the effects of smell fatigue, attention, and conscious levels. Therefore, we adopted multivariate empirical mode decomposition (MEMD) to extract olfactory-related features in MRI BOLD signals. The MEMD was proposed by Rehman and Mandic which acts as a data-driven approach to extract common features in multi-channel data matrix. The MEMD is an improved approach to expand traditional empirical mode decomposition (EMD) from one channel to multi-channel processing by generating multiple N-dimensional envelopes and taking signal projections along different directions in N-dimensional spaces. We took time series of BOLD signals from each slice image for MEMD processing, and the reconstructed slice images were processed by SPM to find fMRI activation areas. It has been demonstrated that the MEMD enables common features of different scales in an image slice to be arranged in distinct IMFs, so that the task-related signals can be selected and reconstructed. With the help of MEMD, unexpected spiky noises were removed and spurious activations were suppressed.

## A Method to Support Medical Trainings using Wearable Smart-glasses

<sup>1\*</sup>Mikifumi Shikida, <sup>2</sup>Kunimasa Yagi

<sup>1</sup> Kochi University of Technology

<sup>2</sup> University of Toyama

Corresponding Email: shikida.mikifumi@kochi-tech.ac.jp

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**Keywords:** Communication Technology, Clinician, Symptoms.

Applying information and communication technology (ICT) to the field of education has lately expected. In this paper, we talk about applying ICT to trainings in medical school. In the case of medical care, the process of asking patients detailed questions about their symptoms is very important. It is done to diagnose exactly or to decide the kind of examination of details. We call this process medical interview. It depends on experience. A clinician who has a lot of experiences can get necessary information out of outpatients. Then, a clinical lecture is lately focused. Especially, a training in medical interview is the one of the most important curriculum. This training should do repeatedly to master the technical skill of asking. However, a trainer (i.e. clinician) is hard to check plural students at the same time in class, because this training is almost done by verbally. It might be complicated and need a long time to do. Its lead to be a burden for the trainer. And, the number of clinician for teaching is not enough. Then, the number of class for trainings is not still enough in Japan. We propose a method for supporting to train in medical interview using wearable smart- glasses. It will support the trainer to ease his/her burden. Because the trainer will monitor trainees by network and will send an instruction to one of them. Moreover, trainees will check current statuses of themselves on the display of the smart-glasses and will get an efficient feedback immediately from the trainer.

## ***UP COMING EVENTS***

You can find the details regarding our upcoming events by following below:

<http://consortium-et.com/upcoming-events/eceee-annual-conference/>

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<http://consortium-et.com/upcoming-events/iset-annual-conference/>

<http://consortium-et.com/upcoming-events/secit-annual-conference/>

# MISSION

*To disseminate knowledge and help scholars, practitioners and administrators to promote the high quality research.*

